



UNITED STATES PATENT AND TRADEMARK OFFICE

TH

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,265	09/27/2004	Nikolay Ivanovich Zheludev	CQ10117	9343

23493 7590 03/13/2007
SUGHRUE MION, PLLC
401 Castro Street, Ste 220
Mountain View, CA 94041-2007

EXAMINER

SHAHER, RICKY D

ART UNIT	PAPER NUMBER
----------	--------------

2872

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/500,265	Applicant(s) ZHELUDEV ET AL.	
	Examiner Ricky D. Shafer	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) 3-5,7,8,11-14 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,9,10 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>06/18/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election of Group I (claims 2, 6, 9, 10 and 15) in the reply filed on 12/04/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 3-5, 7, 8, 11-14 and 17-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12/04/2006.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 2, 6, 9, 10 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 4, the use of the language "and/or pattern" is vague and indefinite due to the fact that the pattern includes the one or more shaped elements. In addition, the use of the language "and/or" is vague and indefinite due to the fact that the claim fails to properly set forth limitations in the alternative only.

In claim 1, lines 6-7, the use of the language "and/or" is vague and indefinite due to the fact that the claim fails to properly set forth limitations in the alternative only.

In claim 1, line 7, "the polarisation state" lacks proper antecedent basis. In addition, the spelling of "polarisation" is incorrect.

Art Unit: 2872

In claim 6, lines 1-2, the use of the language “the or each shaped” lacks proper nexus with respect to the language of claim 1, lines 3 and 4.

In claim 9, lines 1-2, “the second substrate” lacks proper antecedent basis.

In claim 15, lines 2-3, the use of the language “a pattern...elements” lacks proper nexus with respect to the language of claim 1, lines 2-3.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 6, 9, 10 and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Svirko et al.

To the extent the claims are definite, Svirko et al discloses an optical device comprising a substantially planar first layer of a first material (ℓ_1), the first layer being formed with a pattern of one or more shaped elements (strips), each of the one or more shaped elements (strips) having no line of symmetry within the plane of the layer (see figures 1 and 2 along with the associated description thereof), such that an optical signal incident on the device is reflected, transmitted or diffracted by the device and at least one of a polarization state, intensity and or phase of the optical signal is changed as a result of its interaction with the device (see column 1, lines 7-10 and 24-31), wherein the device further comprises a substrate second layer of a dielectric material having different electromagnetic properties to the first material (see column 1, lines 18-21),

Art Unit: 2872

wherein the substrate second layer supports the layer of the first material, wherein each of the one or more shaped elements (strips) comprises a solid shape formed in/on the substrate second layer (see column 6, lines 7-15), wherein the substrate second layer comprises a semiconductor layer (see column 6, lines 16-19) and wherein the device includes a plurality of substantially planar layers (ℓ_1 and ℓ_2) with a pattern of one or more shaped elements (strips), see figures 1 and 2 along with the associated description thereof or alternatively, the additional planar layer(s) (ℓ_2) with a pattern of one or more shaped elements (strips) serves as the second layer and the flat layer of a homogeneous dielectric material positioned between the planar layers (ℓ_1 and ℓ_2) serves as the third layer, as recited in claim 10.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Varadan et al ('922).

To the extent the claims are definite, Varadan et al discloses an optical device comprising a substantially planar first layer of a first material (20), the first layer being formed with a pattern of one or more shaped elements (14) having no line of symmetry within the plane of the layer (see column 4, lines 35-39 along with figures 1-4), such that an optical signal incident on the device is reflected, transmitted or diffracted by the device and at least one of a polarization state, intensity and or phase of the optical signal is changed as a result of its interaction with the device (see column 3, lines 24-27, column 5, lines 12-57, column 7, lines 36-40, column 10, lines 19-29 and column 13, lines 40-62). Note Fig. 1 along with the associated description thereof.

8. Claims 1, 2, 6, 9 10 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Marlotte et al ('269).

To the extent the claims are definite, Marlotte et al discloses an optical device comprising a substantially planar first layer of a first material (5, 20), the first layer being formed with a

Art Unit: 2872

pattern of one or more shaped elements (4) having no line of symmetry within the plane of the layer (see figures 1A, 7A and 7B along with the associated description thereof), such that an optical signal incident on the device is reflected, transmitted or diffracted by the device and at least one of a polarization state, intensity and or phase of the optical signal is changed as a result of its interaction with the device (see page 2, line 1 to page 3, line 43), wherein the device further comprises a substrate second layer (10) having different electromagnetic properties to the first material, wherein the substrate second layer comprises a semiconductor layer (see page 3, lines 52-54), a third layer (12) selected from the group consisting of an electrically insulating layer, a dielectric layer, a piezoelectric material, a ferromagnetic material or a ferroelectric material (see page 3, lines 48-51), the third layer being provided between the substrate second layer and the first layer (see figures 1A, 5A-5E and 6), wherein the device includes a plurality of substantially planar layers (20) with a pattern of one or more shaped elements (see figures 1A, 6, 7A and 7B) and wherein the one or more shaped elements comprises a solid shape formed in the substrate (see figures 1A, 6, 7A and 7B). Note figures 1A, 5A-5E, 6, 7A and 7B along with the associated description thereof.

9. Claims 2, 6, 9, 10 and 15 are objected to because of the following informalities:

In claims 2, 6, 9, 10 and 15, line 1, the use of the language "A device" should be changed to read --The optical device--. Appropriate correction is required.

10. The disclosure is objected to because of the following informalities:

The reference to the swastika or gammadion in the specification and drawings may be deemed offensive to a particular race, religion, ethnic group or nationality. Accordingly, all

Art Unit: 2872

reference to the swastika or gammadion in the specification and drawings must be deleted. In addition, the use of the language “polarisation” throughout the specification is misspelled.

Appropriate correction is required.

11. The drawings are objected to because the reference to the swastika or gammadion in Fig. 2d of drawings may be deemed offensive to a particular race, religion, ethnic group or nationality. Accordingly, all reference to the swastika or gammadion in the drawings must be deleted. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

12. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the shaped elements comprises a hole

Art Unit: 2872

formed in the substrate second layer must be shown or the feature(s) canceled from the claim(s).

No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

13. The drawings are objected to because figures 1, 2, 5-7, 13, 16, 17 and 19-22, each include more than one illustration/figure. Accordingly, each of the illustrations/figures must be individually labeled and include a brief description thereof. For example Fig. 1(a), Fig. 1(b)...etc. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be

Art Unit: 2872

labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

14. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference numerals 70, 72, 74 and 76, disclosed on page 9, lines 8-14 of the specification which is associated with Fig. 10, have not been properly illustrated. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

15. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Reference

Art Unit: 2872

characters 1 and 2, shown in Fig. 3 and reference characters 60, 62, 64 and 66, shown in Fig. 10, each lack a proper written description. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricky D. Shafer whose telephone number is (571) 272-2320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

Application/Control Number: 10/500,265

Page 10

Art Unit: 2872

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RDS

March 05, 2007

Ricky P. Shafer
RICKY P. SHAFER
PATENT EXAMINER
ART UNIT 2872